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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/857,187

06/20/2001

Hikaru Sakamoto

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7590

11/19/2003

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EXAMINER

RUTHKOSKY, MARK

ART UNIT

PAPER NUMBER

1745

DATE MAILED: 11/19/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/857,187

Applicant(s)

SAKAMOTO ET AL.

Examiner

Mark Ruthkosky

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE ____ MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 October 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) 14 and 15 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-4 and 7 is/are rejected.
- 7) ☐ Claim(s) 5, 6 and 8-13 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 June 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Priority

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

The information disclosure statement filed 8/30/2001 has been placed in the application file, and the information referred to therein has been considered as to the merits.

Drawings

The drawings filed on 6/20/2001 have been approved.

Election/Restrictions

Applicant's election without traverse of claims 1-13 in Paper No. 6 is acknowledged.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 2-13 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 2 is to a process for producing a lead-acid battery characterized in that

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welding of a lead bushing integrally cast in a lid of an assembled lead-acid battery and a pole inserted through the lead bushing *and* welded together by laser welding and welding of the lead bushing and a tab terminal member fitly mounted on the lead bushing are carried out by laser welding. The claims states that laser welding is done with regard to the lead bushing, pole and tab terminal, however, it is not clear as to what are actually welded together. It may be the lead bushing and the pole are welded and the lead bushing and the tab terminal are separately welded, or it may be the combinations are welded together or that everything is welded together.

Correction is required.

Claim Objections

Claims 1-13 are objected to because of the following informalities: The claims use the language "characterized in that" to define the claim limitations. For clarity and consistency with U.S. patent practice, it would be appropriate to use the terms "comprising" or "consisting essentially of" in order to clarify the limitations of the claim. The phrase will be considered equivalent to "comprising" language as examined. Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-4 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hiroshi (JP 03-263,756), and further in view of Rossoll (US 5,336,273.)

The instant claims are to a process for producing a lead-acid battery comprising a lead bushing integrally cast in a lid of an assembled lead-acid battery and a pole inserted through the lead bushing are welded together by laser welding.

Hiroshi (JP 03-263,756) teaches a lead-acid battery with a lead bushing integrally cast in the lid of a lead-acid battery with a pole inserted through the lead bushing (abstract.) The bushing and pole are formed with a Pb-Ca alloy and are welded together. A tab terminal is mounted on the bushing. The pole is provided with a projection at the center of the upper surface (figure.) The reference does not teach the welding to be laser welding.

Rossoll (US 5,336,273) teaches the sealing of a battery by laser welding wherein a terminal is laser welded to a battery frame. The welding is pulsed (in col. 8, lines 1-35.) It would be obvious to one of ordinary skill in the art at the time the invention was made to use a laser welding technique to weld a lead bushing integrally cast in the lid with a pole inserted through the lead bushing of the lead-acid battery of Hiroshi as laser welding is well known in the art to form a secure weld between the components as taught by Rossoll. Laser welding is known to weld at sufficiently low temperatures so as to not cause damage to the cell components (col. 3, lines 1-20; col. 8, lines 5-55.) The artisan would have found the claimed invention to be obvious in light of the teachings of the references.

Allowable Subject Matter

Claims 5, 6, and 8-13 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

The instant claims are to a process for producing a lead-acid battery comprising a lead bushing integrally cast in a lid of an assembled lead-acid battery and a pole inserted through the lead bushing are welded together by laser welding. Claims 5 and 6 are to a process where the welding is performed by a laser beam of low output followed by a beam of high output. Claim 8 is to a process wherein a lap density of beads in the laser welding of the pulsed type is in the range of 6-12 points per mm. Claims 9-13 are to a process wherein terminal portions are surrounded by a lower cylindrical end portion of a cylindrical shield, and fumes generated by welding are sucked through an exhaust port in the shield. The prior art does not include teachings of these features in a process for producing a lead-acid battery comprising a lead bushing integrally cast in a lid of the battery and a pole inserted through the lead bushing wherein the bushing and pole are welded together by laser welding.

Examiner Correspondence

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-1193. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mark Ruthkosky whose telephone number is 703-305-0587. The examiner can normally be

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reached on FLEX schedule (generally, Monday-Thursday from 9:00-6:00.) If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached at 703-308-2383.

The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Mark Ruthkosky

Primary Patent Examiner

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11/11/03